UEC Goliad Project Inappropriately Delayed by EPA Region 6 - Region Fails to Follow EPA Regulations and Changes Rules at Each Step in Process

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The Uranium Energy Corporation (UEC), a U.S.-based exploration, development, and production company, is pursuing a new mining project in Goliad County, Texas. Despite receiving full approval from the State of Texas, the project is stalled because the Environmental Protection Agency's (EPA) Region 6 office is attempting to apply a new standard to evaluate the project – one neither supported by existing EPA regulations nor precedent in Region 6 or other EPA regions. UEC has worked in good faith to conduct additional modeling requested by Region 6, but Region 6 keeps changing the standards they are using to evaluate the project, leading to continuing and unnecessary delay.

Goliad Project Receives Extensive Review

Step 1: Review by TCEQ – UEC initiated the permitting process for its Goliad project in 2006. Between 2006 and 2011, UEC was granted all of the required permits from the Texas Commission on Environmental Quality (TCEQ), including a Class III Injection Well Area Permit (known as the "Mine Permit"), Production Area Authorization, Radioactive Material License, Class I Injection Well Permit, TCEQ Air Permit Exemption, and an Aquifer Exemption (AE). As part of the permitting process, TCEQ conducted a thorough assessment of worker safety; air, surface water, and groundwater quality; human health and environmental impacts; groundwater restoration; and surface reclamation. TCEQ determined the project would have no significant impact on human health or the environment, a step required under Texas law before approving the permits.

Step 2: Review by Additional Texas Agencies – In addition, potential environmental impacts of the project were assessed by the Texas Parks and Wildlife Department; potential impacts to archaeological/historic artifacts were assessed by the Texas Historical Commission; and potential impacts to oil/gas resources were assessed by the Railroad Commission of Texas. In each case, the project was found to have no negative impact.

Step 3: Public Notice and Contested Case Hearing – Texas law also requires public notice and an opportunity for a contested case hearing. The UEC Goliad Project Mine Permit, Production Area Authorization, and AE were subject to a lengthy contested case hearing. In accordance with state procedures, TCEQ reviewed the findings of the Administrative Hearings Examiner who presided over the contested case hearing and on December 15, 2010, TCEQ granted the Mine Permit, Production Area Authorization, and AE.

Step 4: TCEQ Submits the AE Request to EPA Region 6 for Concurrence – The federal Safe Drinking Water Act requires the EPA to concur with the state approval of the AE before the AE can be issued. Since Texas has an EPA-Approved Underground Injection Control (UIC) Program, requests for AEs are processed by EPA Region 6 as Non-substantial Revisions to the Approved State Program, a practice in place since 1984 when EPA implemented Guidance for Review and Approval of State UIC Programs and Revisions to Approved State Programs (EPA Guidance 34). TCEQ submitted the Goliad AE request to EPA Region 6 on May 27, 2011.

Step 5: Review by EPA Region 6 – EPA Region 6 responded to TCEQ's request for concurrence on the Goliad AE on July 1, 2011. The Region found TCEQ's request to be "incomplete" and requested unprecedented modeling. In its response to TCEQ, Region 6 did not provide any feedback on the model UEC produced as part of the TCEQ contested case hearing – a model that is not even required for aquifer exemption reviews. In addition, the Region failed to provide any clarity about the additional modeling it requested.

EPA Criteria for AE Approval

For the EPA to grant an AE, a project must meet two criteria (40 CFR § 146.4):

(1) The exempted area does not currently serve as a source of drinking water and

(2) it cannot now and will not in the future serve as a source of drinking water because of the presence of minerals or hydrocarbons expected to be commercially producible.

EPA Guidance Calls for a Water Well Survey, Not a Hypothetical Model

For more than 25 years, all UIC program applicants have followed EPA Guidance 34 to demonstrate the criteria are satisfied. For example, to demonstrate that the exempted area is not currently serving as a source for drinking water, EPA Guidance 34 calls for a survey of the proposed AE area to identify any drinking water supply wells that tap the exempted portion of the aquifer. The survey should also include a buffer area extending a minimum of one-quarter mile outside of the AE boundary.

UEC conducted such a survey and looked at water wells within one kilometer of the proposed AE boundary, far exceeding the requirement in EPA Guidance 34. In addition, UEC produced a comprehensive model as part of the TCEQ contested case hearing to demonstrate that mining fluids will not migrate outside the proposed AE area.

On December 2, 2011, UEC met with Region 6 to better understand the Region's concerns. At that meeting, Region 6 requested that UEC prepare a "proposed modeling plan" on the exterior wells to reveal the appropriate input parameters including evaluation time period, gradient, porosity, sand thickness, etc. Region 6 also asked that the model demonstrate that water wells outside the proposed exemption area are not currently using water from exempted portion of the aquifer. As outlined in Guidance 34, the test that EPA has long required is a detailed water well survey, something that UEC already provided Region 6. That said, in order to move the project forward, UEC agreed to go above and beyond and spent a great deal of effort and money to develop the additional modeling requested by Region 6.

UEC Agrees to Go Beyond Requirements and Conduct Additional Modeling

On January 18, 2012, UEC presented a new modeling plan to Region 6. UEC developed the modeling plan using voluminous site-specific geologic and hydrologic data that was developed during the permitting phases of the project. Other necessary input parameters included life span of the assessment and the domestic water well location and pumping rate. A summary of UEC's model approach is provided below.

- **Objective:** Demonstrate that no existing domestic well is currently using water from the proposed exemption area and that no existing domestic well could produce water from the exemption area during the project life (8 years inclusive of the groundwater restoration phase).
- **Approach:** Use accepted EPA capture zone methods and site data to delineate capture zones.
- **Time Frame:** Perform modeling over a period of the entire mine life. The timeframe for assessing the potential impact of injection and production wells is specified in EPA rules (40 CFR § 146.6). Region 6 also specifically suggested in a July 1, 2011 letter to TCEQ that the timeframe of analysis should be the 8 year mine life.
- **Tabulate the domestic wells in the Area of Review (AOR):** The AOR, according to EPA rules for Class III Wells, is a minimum of one-quarter mile beyond the injection well area.
- **Domestic Well Completion Zone:** Document, if possible, the location and depth of each well. If the completion depth is unknown, assume the wells are completed in all four sands that are included in the AE area.
- **Domestic Water Use:** The model assumes that a typical household uses 309 gallons of water per day. This estimate is based on data from the Texas Water Development Board (TWDB) showing that the average resident uses 119 gallons per day and that there are an estimated 2.6 people per household (www.goliadcc.org/index.php/re-location-info.html).
- **Domestic Well Pumping Rate:** Based on the domestic water use just noted, the average water well pumping rate is 0.215 gallons per minute.
- **Domestic Water Well Capture Zones:** Using the data above, calculate the 8 year capture zone for each well and plot in relation to the proposed AE boundary.
- **Technical Report/Model Results:** Provide Region 6 a detailed technical report with all supporting data inputs.

This reasonable approach directly responds to the modeling parameters that Region 6 outlined in the December 2, 2011 meeting.

EPA Region 6 Continues to Change its Standards for Evaluating the Goliad Project

During the January 18, 2012 meeting, despite acknowledging that UEC's approach was reasonable, the Region once again changed the parameters and directed UEC to come up with a different plan. For example, during the January 18, 2012 meeting, Region 6 changed the definition of "currently" that is used to determine if water wells inside or near the proposed AE are currently serving as a source of drinking water (the attached chart compares the Region's new definition of "currently" to the definition proposed by the Region in their July 1, 2011 letter to TCEQ, as well as the definitions included in EPA regulations and case law).

Region 6 Fails to Provide Full List of Concerns

Although modeling is clearly not required by EPA regulations, UEC is willing to work with Region 6 to conduct additional modeling if the request is reasonable and the Region is specific about the information it needs to process the AE request in a timely manner.

However, it appears the Region's approach is to delay the project indefinitely. A "review process" with no end point is in effect a denial of the request. Even if UEC can satisfy the Region that the

proposed AE does not "currently serve" as a source of drinking water, the Region has indicated it will also request new modeling to demonstrate the project meets the second criterion of 40 CFR § 146.4.

In its July 1, 2011 letter to TCEQ, Region 6 notes that "should the ground water modeling determine that the proposed exempted portion of the Goliad aquifer meets the first criterion, the Region will request additional modeling information for evaluation of the second criterion for an aquifer exemption…" Uranium ore bodies are not substantiated by modeling; instead, they are delineated and assessed by long-standing techniques such as gamma and PFN logging, mapping, and laboratory analysis of core samples collected from the ore zone. EPA's suggestion that ore zones have to be substantiated with a model shows a lack of knowledge and experience in this field. Of the many successful uranium operations over the past 30 years, not a single ore zone was substantiated with a "model." UEC's Goliad Project was independently evaluated by professional geoscientists in a review process known as a "43-101," which verified that a substantial and commercially producible ore body exists at the Goliad site.

If Region 6 has concerns beyond those already outlined, it would be reasonable to expect they would share them with UEC and TCEQ in a timely manner.

Definition of "Currently" – An Example of Region 6 Unilaterally Changing its Standards

Existing EPA Regulations	Case History	Region 6 Standard (July 1, 2011)	Proposed UEC Model	NEW Region 6 Standard (January 18, 2012)
The time period for assessing the potential impact of Class III wells is documented in 40 CFR § 146.6(2). The rule states that the **time period should be "equal to the expected life of the injection well or pattern**."	This issue was addressed in *Western Nebraska Resources Council vs. EPA* (943 F. 2nd, 867, 8th Cir. Ct., 1991). In the case, EPA documented that the test for the term "**currently serves," found at 40 CFR§146.4, is whether a person is "currently using water for human consumption** from the [aquifer] in the specified lateral boundary" of the proposed AE.	In a July 1, 2011 letter to TCEQ, Region 6 stated that it requires a modeling analysis to determine if the aquifer within the exemption boundary currently serves as a source of drinking water. Region 6 went on to specify, "**The time period for such an analysis should extend across all projected production and restoration phases** of the proposed mining activity."	In a meeting on January 18, 2012, UEC proposed additional modeling that would cover the **project period life span (8 years as specified in the permit, which includes aquifer restoration).**	During a meeting with Region 6 on January 18, 2012, UEC was given a new definition[1] of "currently." Region 6 now defines "currently" as an indefinite time period. The Region wants UEC to look at the **time period covering the average lifespan of wellbores in the area – something that is impossible to define and could cover an indefinite number of years**.

[1]Region 6 provided UEC with the following definition of "current" during a meeting on January 18, 2012. "Current Underground Source of Drinking Water – This Region recognizes any aquifer, or portion thereof, containing water that is destined to be captured by an existing water well for human consumption as currently serving as a source of drinking water for that well. For purposes of determining the full extent of water to be captured by any given well, water wells may be assigned an estimated life span based on several factors if known, including: its previous length of service, production history and wellbore longevity in the area."